Third United Nations International Conference on the Peaceful Uses of Atomic Energy

A/CONF.28/A/586
USSR
February 1964
Original: RUSSIAN

Confidential until official release during Conference

Abstract

URANIUM-WATER CRITICAL ASSEMBLIES

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The paper summarises many years of experience gained in the course of operation on the test devices for uranium-water critical assemblies. It defines the basic requirements to the assemblies which, if complied with, make it possible to quickly simulate various types of reactors and describes the design of a typical tank-type and high-temperature test installations and the monitoring, control and safety system.

The basic provisions for the nuclear safety on critical assemblies are described along with the operating procedure for these assemblies.

The paper sets forth the organizational principles of radiation monitoring and radiation safety systems, describes the set of monitoring devices for test installations and individual monitoring devices and cites the average figures on personnel irradiation for the last several years of operation.

The paper then discusses the measuring accuracy and the methods of measurement of main neutron-physical parameters of uranium-water lattices: reactivity, breeding ratio, material buckling, migration area, etc.

Translation provided by courtesy of the submitting Government